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**PART A - DIVISION A1**

**NOTICE INVITING PROPOSALS**

The Intermountain Power Service Corporation (IPSC) invites sealed bids for furnishing **Materials and Services** in accordance with **Specifications 45510**, available in the Purchasing Office, Intermountain Generating Station, 850 West Brush Wellman Road, Delta, UT 84624-9546.

Proposals shall be submitted on IPSC's bidding forms. All Proposals shall be filed with the Buyer at the above address at or before 2:00 p.m. on **December 29, 2000**, at which time all Proposals will be publicly opened and read.

Proposals shall be subject to acceptance within and irrevocable for a period of thirty (30) calendar days after date of bid opening.

The right is reserved to reject any and all Proposals.

In the performance of any Contract awarded, the bidder shall not discriminate in employment practices against any employee or applicant for employment because of race, religion, national origin, ancestry, sex, age, or physical disability.

Dated: \_\_\_\_\_

\_\_\_\_\_  
Buyer

**PART B - DIVISION B1**

**INSTRUCTIONS TO BIDDERS**

1. **Form, Signature, and Delivery of the Proposals:** The bidder's Proposal shall be made on the yellow copy of the Bidding Documents. The specifications printed on white paper shall be retained by the bidder.

The bidder's name, address, and the date shall be stated in the Proposal. The Proposal shall be signed by the person authorized to bind the bidder.

The Proposal shall be enclosed in a sealed envelope, plainly marked in the upper left-hand corner with the name and address of the bidder. The envelope shall bear the words "Proposal for," followed by the specifications number, the title of the specifications, and the date and hour of bid opening.

If the Proposal is mailed, it shall be addressed as follows:

Purchasing Section  
Intermountain Power Service Corporation  
850 West Brush Wellman Road  
Delta, UT 84624-9546

If the Proposal is sent by messenger, it shall be delivered to the Administration Building, Intermountain Power Service Corporation, 850 West Brush Wellman Road, Delta, UT.

2. **Interpretations and Addenda:** Should a bidder find discrepancies or omissions in the plans, specifications, or other documents, or should there be doubt as to their true meaning, the bidder shall submit to the Buyer a written request for an interpretation or clarification thereof. A request for addenda, interpretation, or clarification shall be delivered to the Buyer marked "Request for Interpretation" and will be received by the Buyer in time to permit a reasonable response before date of bid opening. Any interpretation of, or change in, the documents will be made only by addendum issued to each person to whom specifications have been issued and will become a part of any contract awarded. IPSC will not be responsible for any other explanation or interpretations.
3. **Correspondence:** All inquiries or correspondence to IPSC prior to award shall be addressed to the Buyer.
4. **Changes or Alternatives:** The bidder shall not change any wording in the documents. Any explanation or alternatives offered shall be submitted in a letter attached to the front of the Bidding Documents. Alternatives which do not substantially comply with IPSC's specifications cannot be considered. Language of negation or limitation of any rights, remedies, or warranties provided by law will not be considered part of the Proposals. Bids offered subject to conditions or limitations may be rejected.
5. **Specified Materials or Equivalent:** Whenever any particular material or process is specified by a patent or proprietary name, or by a trade or brand name, or by the name of a manufacturer, such wording is used for the purpose of describing the material or process, shall fix the standard of quality required, and shall be deemed to be followed by

## DIVISION B1

INSTRUCTIONS TO BIDDERS

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the words "or equivalent." The bidder may offer any material or process which shall be the equivalent of that so specified.

6. Language: Everything submitted by the bidder shall be written in the English language.
7. Sales or Use Taxes: Prices quoted by the bidder shall not include any applicable sales or use taxes, or Federal Excise Taxes.
8. Duties: Prices quoted by the bidder shall include all applicable duties.
9. Award of Contract: Any award of Contract will be made to the lowest and best regular responsible bidder. The determination as to which is the lowest and best regular responsible bidder may be made on the basis of the lowest ultimate cost of the overall project. The right is reserved to reject any or all Proposals.

Within thirty (30) calendar days after the date of award, the successful bidder shall sign the Contract supplied by IPSC. The Contract will be effective upon execution by IPSC.

10. Comparison of Bids: For the purpose of comparing bids, it will be based on the best overall evaluated bid and meeting the required delivery schedule.

**PART B - DIVISION B2****SUPPLEMENTARY INSTRUCTIONS TO BIDDERS**

1. ☒ **Performance Guarantees and Incentives:** Bidders shall be awarded a bid evaluation credit (not payable dollars) of \$10,000 for each 0.1% in HP section efficiency, above 92% that is guaranteed in the respective bid (Bid Guaranteed Performance.)

Bidders shall be awarded an evaluation credit (not payable dollars) of \$50,000 for each megawatt of HP section wheel power output above 303 megawatts at valves wide open (VWO), 2400 psi throttle, guaranteed in the bid.

The successful bidder shall be penalized \$300,000 if throttle flow at VWO, 2400 psi exceeds 6,975,000 lbs/hr. This penalty covers near term reduced pressure operation and required system modifications.

The successful bidder shall be awarded a cash incentive of \$10,000 for each 0.1% in performance that is confirmed by the performance test results above 93%, or bid guaranteed performance, whichever is greater, up to a maximum performance cash incentive of \$200,000. No testing tolerance shall be applied above 93%, or bid guaranteed performance, whichever is greater, prior to calculating the performance incentive.

The successful bidder shall be penalized \$10,000 for each 0.1% below bid guaranteed HP section efficiency that is confirmed by the performance test results, up to a maximum penalty of \$200,000. This penalty shall not take effect until after the 0.25% testing tolerance has been applied.

The successful bidder shall be awarded a cash incentive of \$50,000 for each megawatt of HP section wheel power output in excess of the bid guarantee that is proven during the initial and thirty (30) day confirmation performance testing, up to a maximum of 5 megawatts or \$250,000.

The successful bidder shall be penalized \$50,000 for each megawatt of HP section wheel power output below the bid guaranteed output that is confirmed during the initial and thirty (30) day confirmation performance testing, up to a maximum penalty of \$250,000.

**PROPOSAL**

The undersigned hereby proposes to furnish and deliver **Materials and Services** to the Intermountain Power Service Corporation in accordance with **Specifications 45510**.

The undersigned agrees, upon the acceptance of this Proposal, to enter into and execute a Contract consisting of the documents identified in Part D of said Specifications for furnishing and delivering the items embraced in the accepted Proposal at the prices named in the accompanying Proposal Schedule.

The undersigned declares under penalty of perjury that such Proposal is genuine, and not sham or collusive, nor made in the interest or in behalf of any person or entity not herein named, and that the bidder has not directly or indirectly induced or solicited any other bidder to put in a sham bid, or any other person, firm, or corporation to refrain from bidding, and that the bidder has not in any manner sought by collusion to secure for itself an advantage over any other bidder.

I declare under penalty of perjury under the laws of the state of Utah that the foregoing is true and correct.

Date \_\_\_\_\_, 20 \_\_\_\_\_

Bidder \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

Signed By \_\_\_\_\_  
(Authorized Signature)

Print Name \_\_\_\_\_

Title \_\_\_\_\_

**PART C - DIVISION C2****BIDDING DOCUMENTS - PROPOSAL SCHEDULE**

Proposal is hereby made to furnish and deliver to IPSC, F.O.B., 850 West Brush Wellman Road, Delta, Ut 84624, in accordance with Specifications 45510, the following: Materials and Services associated with the replacement of the HP Turbine Sections in both units.

**BID TOTALS**

	<u>Unit 2 (2002)</u>	<u>Unit 1 (2003)</u>
Price for Fully Assembled HP Turbine Section:	_____	_____
Price for Aligned/Partially Disassembled Section:	_____	_____
Price for Freight:		
Fully Assembled:	_____	_____
Partially Assembled:	_____	_____
Contract Cancellation Cost:		
If more than sixteen (16) months before ship:	_____	_____
Twelve (12) to sixteen (16) months before ship:	_____	_____
Ten (10) to twelve (12) months before ship:	_____	_____
Six (6) to ten (10) months before ship:	_____	_____
If less than six (6) months before ship:	_____	_____
Field Service Engineering:	_____	_____
(To include all labor, expertise, travel, expenses, and services)		
Field Service Engineering - Unanticipated Work Hours:		
Regular Hours:	_____	_____
Ten (10) to sixteen (16) Hrs/day:	_____	_____
Holidays:	_____	_____
Travel time:	_____	_____
Expenses/day:	_____	_____
Turbine Internal Alignment Services:	_____	_____
(To include all labor, expertise, travel, expenses, equipment, and services)		
Guaranteed HP Section Efficiency:	_____	_____
(Measured across both valves and HP section)		
Guaranteed HP Section Wheel Power Output:	_____	_____

## Labor for Identified Turbine Work Scope:

Assembly/Disassembly:	_____	_____
Sandblasting:	_____	_____
Component Repair:	_____	_____
Other:	_____	_____

Total Labor:	_____	_____
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Price for Optional Retractable Packing: (Packing design must be approved by IPSC representative)	_____	_____
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Guaranteed Delivery Dates:	_____	_____
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Prices: The price or prices shall be firm.Taxes: The foregoing quoted prices are exclusive of all applicable sales and use taxes.

Form of Business Organization: Bidder shall state below the form of its business organization.

Bidder is \_\_\_\_\_ (Corporation, Partnership, Limited Partnership,  
Individual)

If a partnership, the bidder shall state below the names of the partners. If a corporation, the bidder shall state below the names of the president and of the secretary.

_____	_____
_____	_____

Person to Contact: Should IPSC desire information concerning this Proposal, please contact:

Name \_\_\_\_\_ Telephone No. \_\_\_\_\_

Address \_\_\_\_\_



**PART C - DIVISION C3****BIDDING DOCUMENTS - ADDITIONAL BID INFORMATION**

1. In addition to any other requirements, the Contractor shall provide the following information with the bid submittals:
  - a. A list of all components provided, with manufacturer part numbers and including component life expectancy.
  - b. Balance criteria to be imposed by Contractor.
  - c. Estimated shipping weight and installation weight of assembled HP.
  - d. Detailed explanation of methods and equipment to be used in performing turbine internal alignment.
  - e. List of any additional items which the Contractor will need IPSC to provide, other than those listed in Division F2, Page F2-3, Section 8.
  - f. Resume and experience list for each Field Service Engineer, Technician, or other personnel to be involved in the IPSC based portions of the work.
  - g. Detailed plan for any on-site inspection work that must occur in advance of the installation, including the upcoming Unit 1 outage beginning March 5, 2001. The plan shall include all tasks assigned to IPSC and any equipment required in support of the inspection procedure.
  - h. Detailed, task-level outage schedule for HP retrofit. This schedule shall be prepared in two (2) forms:
    - (1) IPSC turbine mechanics, six (6) each, working six (6) days per week, two (2) shifts per day, and ten (10) hours per shift.
    - (2) Contractor supplied labor working seven (7) days per week, two (2) shifts per day, and twelve (12) hours per shift.
  - i. A list of any special tools required for installation or maintenance of the new HP section, including balance weight placement or casing guide pins.
  - j. A list of recommended spare parts associated with the HP section. The list shall include estimated life of each component and location/quantity of any Contractor warehoused stock of each item.

## DIVISION C3

ADDITIONAL BID INFORMATION

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- k. Applicable section of each code and/or standard used in development and design of the HP turbine section including:
  - (1) ASTM - Materials Standards.
  - (2) ASME - Performance and Construction Standards.
  - (3) AISI - Materials Standards.
  - (4) ISO - Balance Standards (or applicable international standard.)
- l. The Contractor shall submit a required payment schedule for the term of the Contract. The schedule shall clearly identify each payment to be made, the time of each payment after award, and the associated percentage of base bid.
- m. The Contractor shall submit a detailed HP-IP training class agenda for a one (1) week, forty (40) hour class for approximately thirty (30) personnel. The agenda shall cover all aspects of the HP-IP overhaul/retrofit including alignment.
- n. The Contractor shall submit detailed information with a diagram showing type and location of erosion-resistant treatment throughout the steam path.

**PART D - DIVISION D1**

**CONTRACT DOCUMENTS**

The documents listed in the Table of Contents, the reference specifications, any documents listed below, and the bidding documents as expressly agreed to by IPSC shall constitute the Contract. Said documents are complimentary and require complete and finished work. Anything shown or required of the Contractor in any one or more of said documents shall be as binding as if contained in all of said documents. The Contractor shall not be allowed to take advantage of any error, discrepancy, omission, or ambiguity in any document, but shall immediately report to the Chief Operations Officer, in writing, any such matter discovered. The Chief Operations Officer will then decide or correct the same and the decision will be final.

**PART E - DIVISION E1****GENERAL CONDITIONS**

1. **Definitions:** The following words shall have the following meanings:
  - a. **Bidder:** The person, firm, or corporation adopting and submitting a Proposal under these specifications.
  - b. **Buyer:** The Purchasing Agent for IPSC.
  - c. **Chief Operations Officer:** The President and Chief Operations Officer of IPSC or designated representatives acting within the limits of their authority.
  - d. **Contract Administrator:** The IPSC employee designated by the Chief Operations Officer with primary responsibility for administration of the Contract or designated representatives acting within the limits of their authority.
  - e. **Contractor:** The person, firm, or corporation to whom the Contract is awarded.
  - f. **Directed, Required, Approved, Etc.:** The words *directed, required, approved, permitted, ordered, designated, prescribed, instructed, acceptable, accepted, satisfactory*, or similar words shall refer to actions, expressions, and prerogatives of the Contract Administrator, unless otherwise expressly stated.
  - g. **Gallon:** Liquid volume of 231 cubic inches at 60 degrees Fahrenheit.
  - h. **IPA:** Intermountain Power Agency, the owner of IPP, and a political subdivision of the state of Utah, organized and existing under the Interlocal Co-operation Act, Title 11, Chapter 13, Utah Code Annotated 1953, as amended.
  - i. **IPP:** Intermountain Power Project, consisting of Intermountain Generating Station, Intermountain Railcar, Intermountain Converter Station, Adelanto Converter Station, Intermountain AC Switchyard and associated transmission lines, microwave stations, and support facilities.
  - j. **IPSC:** Intermountain Power Service Corporation, a nonprofit corporation, furnishing personnel to support the Operating Agent in the performance of operation and maintenance.
  - k. **Operating Agent:** The city of Los Angeles Department of Water and Power (LADWP) which is responsible for operation and maintenance for IPP.
  - l. **Reference Specifications:** Those bulletins, standards, rules, methods of analysis or test, codes, and specifications of other agencies, engineering societies, or industrial associations referred to in these specifications. These refer to the latest edition, including amendments published and in effect at the date of advertising these specifications, unless specifically referred to by edition, volume, or date.

## DIVISION E1

## GENERAL CONDITIONS

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- m. Subcontractor: A person, firm, or corporation, other than the Contractor and employees thereof, who supplies labor or materials on a portion of the work.
- n. Ton: The short ton of 2000 pounds.
2. Materials and Work: All materials and work shall comply with these specifications. All materials and equipment furnished shall be new and unused, but this requirement shall not preclude the use of recycled materials in the manufacturing processes. All work shall be done by qualified workers in a thorough and workmanlike manner. Materials or workmanship not definitely specified, but incidental to and necessary for the work, shall conform to the best commercial practice for the type of work in question.
3. Nondiscrimination: The applicable provisions of Executive Order No. 11246 of September 24, 1965, and Bureau of Land Management regulations pertaining to nondiscrimination in employment in the performance of contracts, are incorporated herein by reference, and made a part hereof as if they were fully set forth herein. During the performance of this Contract, the Contractor shall not discriminate in its employment practices against any employee or applicant for employment because of the employee's or applicant's race, religion, national origin, ancestry, sex, age, or physical handicap. All subcontracts awarded under any such contract shall contain a like nondiscrimination provision.
4. Governing Law: All matters relating to the validity, construction, interpretation, and enforcement of the bid, Contract, and bonds shall be determined in accordance with the laws of the state of Utah.
5. Patents: The Contractor shall fully indemnify IPSC, IPA, and the Operating Agent against any and all liability whatsoever by reason of any alleged infringement of any patent on any article, process, method, or application used in the construction of the work, or by reason of use by IPSC of any article or material furnished under this Contract.
6. Contractor's Address and Legal Service: The address given in the Proposal shall be considered the legal address of the Contractor and shall be changed only by written notice to IPSC. The Contractor shall supply an address to which certified mail can be delivered. The delivery of any communication to the Contractor personally, or to such address, or the depositing in the United States Mail, registered or certified with postage prepaid, addressed to the Contractor at such address, shall constitute a legal service thereof.
7. Assignment of Contract Prohibited: The Contractor shall not assign or otherwise attempt to dispose of this Contract, or of any of the monies due or to become due thereunder, unless authorized by the prior written consent of the Chief Operations Officer. No right shall be asserted against IPSC, IPA, or the Operating Agent, in law or equity, by reason of any assignment or disposition unless so authorized.

If the Contractor, without such prior written consent, purports to assign or dispose of the Contract or of any interest therein, IPSC, at its option, may terminate the Contract, and

IPSC, IPA, and the Operating Agent will be relieved and discharged from any and all liability and obligations to the Contractor, and to any assignee or transferee thereof.

8. Quality Assurance: All materials or equipment furnished and delivered under the Contract will be subject to rigorous inspection by the Contract Administrator. Before offering any material or equipment for inspection or testing, the Contractor shall eliminate all items which are defective or do not meet the requirements of the specifications. If any items or articles are found not to meet the requirements of the specifications, the lot, or any faulty portion thereof, may be rejected. The fact that the materials or equipment have been inspected, tested, or accepted by the Contract Administrator shall not relieve the Contractor of responsibility in case of later discovery of flaws or defects.

Materials or equipment purchased under the Contract will be inspected at IPSC's specified receiving points and there accepted or rejected. Inspection will include all necessary testing for determining compliance with the specifications. The expense of the initial acceptance tests will be borne by IPSC. All expense of subsequent tests will be charged against the Contractor when due to failure of first-offered materials or equipment to comply with the specifications.

Notwithstanding the above, the Contractor shall implement a quality assurance program addressing all phases of design, manufacture, installation, and startup of the HP turbine section. The purpose of the HP section Q/A program is to ensure that:

- a. Design documents, drawings, specifications, quality assurance procedures, inspections procedures, and purchase documents are maintained current, accurate, and under control.
- b. The purchased materials, equipment, and services conform to the requirements of these documents.
- c. Receipt inspections, in-process inspections, examination, and testing are complete and appropriate.
- d. Subcontracted work is adequately inspected and monitored.
- e. Special processes such as welding, heat treating, hot forming, and NDE are of adequate quality.
- f. Welders and NDE personnel are adequately qualified.
- g. Nonconforming equipment and materials are properly documented, controlled, and dispositioned.

IPSC shall have full access, at all times, to the quality assurance procedures, instructions, and nonconforming reports applicable to the equipment and materials furnished under this Contract.

## DIVISION E1

## GENERAL CONDITIONS

The quality assurance manual shall include the manufacturing locations of each major component, all tests to be performed on each component and assembly, and shall list the individuals with respective phone numbers who will be in charge of quality verification at each site.

The Contractor shall, as a minimum, provide for the following levels of documentation, review, and acceptance of quality assurance procedures and reporting on all major components including the following:

- a. Rotor.
- b. Buckets.
- c. Diaphragms.
- d. Inner casing.
- e. Inner casing bolts.
- f. First stage nozzle.
- g. Test definitions note:
  - (1) Witness: The test may be attended by an IPSC representative.
  - (2) Review: IPSC shall review the test results prior to start of manufacturing.
  - (3) Copy: IPSC shall receive signed copy of the test results within one (1) week.

	Witness	Review	Copy
Design Review	a, b, c, d, e, f		
Chemical/Mechanical Properties			a, b, c, d, e, f
Mill Certifications			a, b, c, d, e, f
Heat Stability Testing			a
Non-Destructive Testing (Includes welds and castings)		a, b, c, d, e, f	
Dimensional Checks	a, b, c, d, e, f		
Balance/Overspeed Testing		a	
Final Shipping Inspection	a, b, c, d, e, f		

Additional examination or testing may be required by IPSC of any welds, castings, or forgings with indications exceeding code allowables or those having been or requiring repair.

Where designs incorporate sectionalized rotors, the root welds shall be examined using MT methods. Final passes shall also be examined using MT and UT from three (3) angles of maximum reasonable variation.

9. Extra Work or Changes by IPSC: IPSC reserves the right at any time before final acceptance of the entire work to order the Contractor to perform extra work, furnish extra material or equipment, or to make changes altering, adding to, or deducting from the work, without invalidating the Contract. Changes shall not be binding upon either IPSC or the Contractor unless made in writing in accordance with this article.

Changes will originate with the Chief Operations Officer who will transmit to the Contractor a written request for a Proposal covering the requested change, setting forth the work in detail, and including any required supplemental plans or specifications. Upon receipt of such request, the Contractor shall promptly submit in writing to the Chief Operations Officer a Proposal offering to perform such change, a request for any required extension of time caused by such change, and an itemized statement of the cost or credit for the proposed change. Failure of the Contractor to include a request for extension of time in the Proposal shall constitute conclusive evidence that such extra work or revisions will entail no delay and that no extension of time will be required.

If the Contractor's Proposal is accepted by IPSC, a written change order will be issued by the Chief Operations Officer stating that the extra work or change is authorized and granting any required adjustments of Contract price and of time of completion.

The performance of extra work or changes pursuant to change order shall be in accordance with the terms and conditions of these specifications. No extra work shall be performed or change made unless pursuant to such written change order, and no claim for an addition to the Contract price shall be valid unless so ordered.

10. Changes at Request of Contractor: Changes may be made to facilitate the work of the Contractor. Such changes may only be made without additional cost to IPSC and without extension of time. Permission for such changes shall be requested in writing by the Contractor to the Chief Operations Officer.
11. Time is of the Essence and Extensions of Time: Time is of the essence of the Contract. Delivery shall be completed within the times and by the dates specified. Time for delivery shall not be extended except as provided in this Article.

If the Contractor makes a timely written request in accordance with this Article, the time for delivery will be extended by a period of time equivalent to any delay of the whole work which is: (1) authorized in writing by the Chief Operations Officer, or (2) caused solely by IPSC, or (3) due to unforeseeable causes (such as war, strikes, or natural disasters) and which delay is beyond the control and without the fault or negligence of the Contractor and subcontractors.



## DIVISION E1

## GENERAL CONDITIONS

The Contractor shall promptly notify the Chief Operations Officer in writing at both the beginning and ending of any delay, of its cause, its effect on the whole work, and the extension of time claimed. Failure of the Contractor to provide such written notices and to show such facts shall constitute conclusive evidence that no excusable delay has occurred and that no extension of time is required.

The Chief Operations Officer will ascertain the facts and the extent of the delay and will extend the time for delivery when the findings of fact justify such an extension. The Chief Operations Officer's determination will be final and conclusive.

IPSC will be responsible for extensions of time as herein provided, but will not otherwise be responsible in any manner or to any extent for damage directly or indirectly suffered by the Contractor by any delay.

12. Protests and Claims: If the Contractor considers any demand of the Chief Operations Officer to be outside of the requirements of the Contract, or considers any amount of payment, or any record, ruling, or other act or omission by the Chief Operations Officer to be unreasonable, the Contractor shall promptly deliver to the Chief Operations Officer a written statement of the protest and of the amount of compensation claimed.

Upon written request by the Chief Operations Officer, the Contractor shall provide access to all records containing any evidence relating to the claim or protest. Upon review of the protest, claim, and evidence, the Chief Operations Officer will promptly advise the Contractor in writing of his final decision which will be binding on all parties.

The requirements of this article shall be in addition to, and shall not be construed as waiving, claims provisions of the Government Code of the state of Utah. The Contractor is deemed to have waived and does waive all claims for extensions of time and for compensation in addition to the Contract price except for protests and claims made and determined in accordance with this Article.

13. Limitation of Liability: It is understood and agreed that the Intermountain Power Agency will be the party solely liable to the Contractor for payments under this Contract and for any breaches, defaults, or for any torts in the performance of this Contract by IPA or the Operating Agent or IPSC or any officers, agents, or employees thereof, and the Contractor hereby expressly covenants and agrees that no suit shall be brought by the Contractor against the Operating Agent or IPSC or their officers, agents, or employees or any of the purchasers of power from IPA, but that all rights or remedies that the Contractor may have or that may arise shall be asserted by the Contractor solely against IPA.

14. Independent Contractor: Contractor shall perform said services as an independent contractor in the pursuit of its independent calling, is not an employee, agent, joint venturer, partner, or other representative of IPSC or Operating Agent and shall be under the control of IPSC only to provide the services requested and not as to the means or manner by which the work is to be accomplished. Contractor has no authority to act for, bind, or legally commit IPA, IPSC, or the Operating Agent in any way.

**PART E - DIVISION E2**

**ADDITIONAL GENERAL CONDITIONS**

1. Warranty: The Contractor shall warranty for a minimum period of two (2) years after installation that all materials and workmanship furnished in that installation shall be free from defects.

Due to IPSC outage schedules, the Contractor's warranty must extend for two (2) years beyond the installation date in order to verify the cause of and correct any significant efficiency reductions. Due to operational priorities, access to turbine components for warranty adjustments shall be at the discretion of IPSC.

IPSC shall retain the right to operate the components and equipment provided under these specifications regardless of any outstanding warranty issues. The Contractor shall be released from any additional claims for damage incurred as direct result of such continued operation. Warranty obligations for defects not attributable to such continued operation shall remain the responsibility of the Contractor.

Contractor shall provide schedule identifying any maintenance procedures or testing/inspection required to maintain the bid warranty provisions.

The Contractor shall repair or replace, F.O.B. contract delivery point, all such defective materials and workmanship.

2. Payment: Payment will be made within thirty (30) calendar days after delivery and receipt of the invoice. Payment shall occur as specified within the bid payment schedule submitted as identified in Division C3, Page C3-2, Section I.
3. Regulations, Permits, Licenses, and Warrants: The Contractor shall comply with all applicable federal, state, and local regulations pertaining to safety including, but not limited to, Federal and State OSHA, as said regulations relate to this Contract. In addition, the Contractor shall ensure that all permits, licenses, and warrants relating to the Contract be acquired.
4. Letters to IPSC: All inquiries relating to these specifications prior to award of Contract shall be addressed to the Buyer. After award, all letters pertaining to performance of the Contract shall be addressed as follows:

S. Gale Chapman  
President and Chief Operations Officer  
Intermountain Power Service Corporation  
850 West Brush Wellman Road  
Delta, UT 84624-9546

Attention: Contract Administrator

Regarding Contract No. 45510

**PART F - DIVISION F1****DETAILED SPECIFICATIONS - SPECIAL CONDITIONS**

1. General: Under the terms of the Contract, the Contractor shall provide Material and Services as specified by IPSC beginning with date of award of Contract, hereinafter called the "Contractual Period."
2. Printed Documents: All printed documents including drawings and instruction books, if applicable, shall be in the English language. All units of measurement shall be in the English foot-pound-second system.
3. Delivery Arrangements: After date of award of Contract and prior to delivery, the Contractor shall familiarize himself with the unloading facilities at the delivery point set forth in the Proposal Schedule, either by personal inspection or by contacting the Contract Administrator, (435) 864-4414.

For specific delivery of HP turbine components, see Division F2, Page F2-5, Section 13.

4. Indemnity Clause: The Contractor undertakes and agrees to indemnify, hold harmless, and at the option of the Intermountain Power Agency, defend Intermountain Power Agency, Intermountain Power Service Corporation, Los Angeles Department of Water and Power, and any and all of their boards, officers, agents, representatives, employees, assigns and successors in interest from and against any and all suits and causes of action, claims, charges, costs, damages, demands, expenses (including, but not limited to, attorneys' fees and cost of litigation), judgments, civil fines and penalties, liabilities or losses of any kind or nature whatsoever, for death, bodily injury or personal injury to any person, including Contractor's employees and agents, or damage or destruction to any property of either party hereto, or third persons in any manner arising by reason of or incident to the performance of this Contract on the part of the Contractor, or the Contractor's officers, agents, employees, or subcontractors of any tier, except for the sole negligence of IPA, IPSC, LADWP, or their boards, officers, agents, representatives, or employees.
5. Insurance Requirements: Prior to the start of work, but not later than thirty (30) days after date of the award of contract, the Contractor shall furnish IPSC evidence of coverage from insurers acceptable to IPSC and in a form acceptable to the Insurance Analyst for IPSC. Such insurance shall be maintained by the Contractor and at the Contractor's sole cost and expense.

Such insurance shall not limit or qualify the liabilities and obligations of the Contractor assumed under the Contract. IPA, IPSC, or LADWP will not by reason of its inclusion under these policies incur liability to the insurance carrier for payment of premium for these policies.

Any insurance carried by IPA, IPSC, or LADWP which may be applicable will be deemed to be excess insurance and the Contractor's insurance is primary for all purposes despite any conflicting provision in the Contractor's policies to the contrary.

Should any portion of the required insurance be on a "Claims Made" policy, the Contractor shall, at the policy expiration date following completion of work, provide

evidence that the "Claims Made" policy has been renewed or replaced with the same limits, terms and conditions of the expiring policy, or that an extended discovery period has been purchased on the expiring policy at least for the Contract under which the work was performed.

Failure to maintain and provide acceptable evidence of the required insurance for the required period of coverage shall constitute a breach of Contract, upon which the Contract may be terminated or suspended.

a. Workers' Compensation/Employer's Liability

Workers' Compensation Insurance covering all of the Contractor's employees in accordance with the laws of any state in which the work is to be performed and including Employer's Liability Insurance, and as appropriate, Broad Form All States Endorsement, Voluntary Compensation, Longshoremen's and Harbor Workers' Compensation, Jones Act, and Outer-Continental Shelf coverages. The limit for Employer's Liability coverage shall be not less than \$1 million each accident and shall be a separate policy if not included with Workers' Compensation coverage. Evidence of such insurance shall be an endorsement to the policy providing for a thirty (30) day prior written notice of cancellation or nonrenewal of a continuous policy to IPSC, by receipted delivery, and a Waiver of Subrogation in favor of IPSC, IPA, and LADWP, its officers, agents, and employees. Workers' Compensation/Employer's Liability exposure may be self-insured provided that IPSC is furnished with a copy of the certificate issued by the state authorizing the Contractor to self-insure. Contractor shall notify IPSC by receipted delivery as soon as possible of the state withdrawing authority to self-insure.

b. Commercial General Liability

Commercial General Liability with Blanket Contractual Liability, Products and Completed Operations, Broad Form Property Damage, Premises and Operations, Independent Contractors, and Personal Injury coverages included. Such insurance shall provide coverage for total limits actually arranged by the Contractor, but not less than \$2 million Combined Single Limit and be specific for this Contract. Should the policy have an aggregate limit, such aggregate limits should not be less than \$4 million. Umbrella or Excess Liability coverages may be used to supplement primary coverages to meet the required limits. Evidence of such coverages shall be on IPSC's additional insured endorsement form or on an endorsement to the policy acceptable to IPSC and provide for the following:

- (1) To include IPA, IPSC, LADWP, and their officers, agents, and employees as additional insured with the Named Insured for the activities and operations under the Contract.
- (2) That the insurance is primary and not contributing with any other insurance maintained by IPSC.

## DIVISION F1

## DETAILED SPECIFICATIONS

- (3) A Severability-of-Interest of Cross-Liability Clause such as: "The policy to which this endorsement is attached shall apply separately to each insured against whom a claim is made or suit is brought, except with respect to the limits of the company's liability."
- (4) That the policy shall not be subject to cancellation, change in coverage, reduction of limits or nonrenewal of a continuous policy, except after written notice to IPSC by receipted delivery, not less than thirty (30) days prior to the effective date thereof.
- (5) A description of the coverages included under the policy.

c. Commercial Automobile Liability

Commercial Automobile Liability covering the use of owned, nonowned, hired, and leased vehicles for total limits actually arranged by the Contractor, but not less than a \$1 million Combined Single Limit. Such insurance shall include Contractual Liability coverage. The method of providing evidence of insurance and requirements for additional insureds, primary insurance, notice of cancellation, and Severability-of-Interest shall be the same as required in the Commercial General Liability Section of these terms and conditions.

d. Other Conditions

- (1) Failure to maintain and provide acceptable evidence of the required insurance for the required period of coverage shall constitute a major breach of Contract, upon which IPSC may immediately terminate or suspend the agreement, at its option, procure such insurance as necessary and deduct the cost, including a two (2) percent administrative charge from any monies due the Contractor, or shall be immediately reimbursed by the Contractor for such costs upon demand.
- (2) Contractor shall be responsible for all subcontractor's compliance with these insurance requirements.

6. Transportation: All shipments of hazardous materials under this Contract shall be handled in accordance with current U.S. Department of Transportation regulations.

7. Safety: The Contractor agrees that it is familiar with the risks of injury associated with the work, has reviewed the work to be performed and the job site with an IPSC representative, and determined that no unusual or peculiar risk of harm exists with regard to the work to be performed at the job site.

The Contractor further agrees that it shall at all times provide at the job site a competent supervisor(s) familiar with IPSC's and the industry's safety standards to ensure compliance with all federal, state, and local regulations pertaining to safety, including but not limited to, Federal and State OSHA, as said regulations relate to the work to be performed under the Contract. Although IPSC assumes no responsibility to oversee or supervise the work, IPSC reserves the right to review safety programs and practices

and make recommendations to the Contractor. Any such review or recommendation by IPSC will not increase IPSC's liability or responsibility and shall not relieve the Contractor from providing a safe work environment and complying with legal requirements.

8. Material Safety Data Sheets: The Contractor shall furnish a Material Safety Data Sheet (MSDS) for all hazardous materials furnished under this Contract. The MSDS shall be furnished to IPSC on, or prior to, the date of the first delivery of the materials or equipment.

If the specifications require that the Contractor furnish instruction books, the Material Safety Data Sheets shall also be included in such books.

**PART F - DIVISION F2****DETAILED SPECIFICATIONS - TECHNICAL REQUIREMENTS**

1. General: This specification provides technical information required for providing both products and services associated with supply and replacement of High-Pressure (HP) turbine sections, overhaul of Intermediate-Pressure (IP) turbine, internal alignment of these two (2) sections, and technical direction for effectively completing all turbine work scheduled for both the March 2002 Unit 2 and the March 2003 Unit 1 outages at IPSC.
2. Unit Description: IPSC consists of two (2) sister units operating S-2, triple tandem-compound, single reheat, twenty (20) stage, impulse-type turbines with a double-flow nozzle. The HP turbine is a partial arc design with seven (7) stages including one (1) fourth stage extraction, second stage rotor cooling, and first stage pressure tap. The turbine is controlled via Mark II series electro hydraulic system.

The turbines have been increased in nominal output rating from an original installation output of 840 megawatts gross to a current rating of 875 megawatts gross.

3. Scope of Work: The planned scope of work for the turbine generator during the Unit 2 outage beginning March 2, 2002, and the Unit 1 outage beginning March 1, 2003 is:
  - a. Replacement of the HP turbine section.
  - b. Major inspection and overhaul of the IP turbine section.
  - c. Testing and possible disassembly of the generator for repair of stator winding leaks.
  - d. Main stop, control, combined reheat, and ventilator valves.
  - e. Overhaul of servos, switches, and PMG at front standard.

The above scope of work is to be provided for each unit at IPSC during their respective outages. Bidders are encouraged to respond to the above specified outage start dates if possible. If adherence to the above dates places significant risk in either quality or delivery of the HP turbine section, the bidder may propose an alternate schedule for outage start date. Proposals with modified outage start dates more than one (1) month later than those specified above, may be rejected.

4. Scope of Supply: This section includes the following:
  - a. Design, manufacture, shop testing, and delivery of a new, high-efficiency HP turbine section, including any required special tools.
  - b. Field engineering services for on-site direction during installation of the new HP turbine section, overhaul of the IP section, overhaul of control, stop, and combined reheat valves, overhaul of front standard servos, and instrumentation testing, and operation of the completed turbine as listed in Section 6.
  - c. Field direction of electro hydraulic control system modifications for optimized valve operation including parts as required.

## DIVISION F2

## TECHNICAL REQUIREMENTS

- d. Internal alignment services for both the HP and the IP turbines.
- e. On-site training for complete HP-IP overhaul/retrofit. Training agenda to be prepared based on a one (1) week, forty (40) hour schedule. Training to cover all aspects of overhaul including alignment for approximately thirty (30) people.

5. Design Conditions and Criteria: The justification for this project rests on both performance and output. Therefore, all reasonable effort shall be made to identify and incorporate the most current and proven performance related technologies.

IPSC understands that by design, the new, high-efficiency HP turbine sections are unable to provide both partial-arc and full-arc operational modes. Accordingly, IPSC chooses to specify a full-arc operational design to take advantage of upper end operating efficiencies.

As a part of the modification to exclusive, full-arc control, the Contractor shall provide required hardware and technical support for modifying existing valve operation. The Contractor shall ensure that valve control, unit stability, and generation flexibility are not restricted, encumbered, or complicated beyond current capabilities.

The HP section shall be designed for the following throttle conditions and flow passing capability at VWO:

- a. 2400 psi.
- b. 1000 F.
- c. 6,900,000 lbs/hr.

The HP section steam path components shall be designed with an erosion-resistant treatment package. Specific type and application location information shall be provided with the bid submittal.

The Contractor shall be solely responsible for ensuring that all piping penetrations, instrument taps/wells, interfacing keys and supports, journals, couplings, snout sections, seals, etc., are properly located and sized.

Maximum allowable vibration in any plane in the fully assembled and operating turbine is 1.5 mils p/p, overall reading.

The HP turbine sections provided for installation on Unit 1 and Unit 2 shall be operationally interchangeable in every regard.

6. Field Service Engineering: Field Service Engineers shall arrive on site no later than two (2) days prior to the respective outage scheduled start dates. Field Service Engineers shall be available in accordance with the planned outage shift schedule, from two (2) days prior to the outage scheduled start date, until released by IPSC following successful startup and operation of the turbine.



## DIVISION F2

## TECHNICAL REQUIREMENTS

A minimum of two (2) qualified Field Service Engineers shall be provided, one (1) for the day shift and one (1) for the night shift. The Engineers shall perform the following functions:

- a. Technical direction to IPSC for disassembly, cleaning, inspection, repair, part replacement, reassembly, rotor alignment, balancing, etc. of the steam turbine-generator.
- b. Assist IPSC with overhaul planning, schedule preparation, and schedule updating.
- c. Prepare, and submit to IPSC, a technical report which details the inspections, repairs, and future recommendations related to the work done on the turbine generator.

The Field Service Engineers shall have had formal training for field engineering on large, impulse design, steam turbine generators. The Field Service Engineers shall have at least ten (10) years of field engineering experience in installation, repair, and operation of these type machines.

7. Internal Alignment Services: The Contractor shall provide labor, supervision, expertise, tools, and equipment for full internal alignment of the HP and IP sections of the turbine. Where laser alignment technology is employed, the Contractor shall test all equipment at the Contractor's shop prior to mobilizing to the site to prevent downtime due to faulty equipment.

The Contractor shall provide adequate numbers of trained personnel in order to judiciously pursue completion of the internal alignment without interruption, during the scheduled alignment window.

Alignment personnel must be able to effectively coordinate all alignment information with the Field Service Engineers at the site, regardless of corporate affiliation.

Personnel conducting turbine internal alignment work shall be trained and qualified in the procedures used and in operation of the equipment required for the work. The personnel shall have performed the same work on at least ten (10) previous occasions, and at least five (5) of those on large, impulse design steam turbines.

8. IPSC Provided Facilities: IPSC shall provide a single desk in an enclosed office trailer on the turbine deck for the Field Service Engineers to use. The trailer will also be occupied by IPSC personnel.

IPSC shall provide a single telephone line in the office trailer for use by the Field Service Engineers.

IPSC shall provide access to a fax and copy machine for use by the Field Service Engineers.

## DIVISION F2

## TECHNICAL REQUIREMENTS

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9. Reference Drawings: Unit 1, benchmark test heat balance, (Figure 1), Unit 2, benchmark test heat balance, (Figure 2), Unit 1, operating heat balance (Figure 3), Unit 2, operating heat balance, (Figure 4).
10. Operating Experience: For Contractor's information only, IPSC has operated for the past five (5) to six (6) years with net capacity and availability factors in excess of 90%, with net output in excess of 95%.

Weekly valve and yearly tightness and over speed testing has been successfully completed since original installation.

Turbine startups have been relatively smooth on both units. Only rarely is a balance shot required during startup.

A load profile (Figure 5), typical of recent years is enclosed for your information.

11. Maintenance History and Provisions: The IPSC turbines were overhauled completely by the OEM approximately two (2) years after start of commercial operation. Since that time, all maintenance on the turbines has been performed by IPSC personnel under the direction of a Field Service Engineer.

Turbine oil is monitored by on-site predictive maintenance personnel who are fully trained in ferrographic, particulate, and inductively coupling plasma analysis. The turbine oil was recently replaced on both units as the oil additive packages were showing signs of degradation affecting the oil/moisture separation properties; however, moisture has remained continually within allowable limits.

IPSC is aware of no dimensions affecting the installation of a new HP that have been modified since installation. The only significant modifications to the turbine since startup are as follows:

- a. Hydraulic Coupling Bolts, Ovako, Inc.
- b. Retractable Packing, Turbocare, Inc.

12. Manufacturing Schedule: Within six (6) weeks of Contract award, the Contractor shall submit a detailed schedule showing all facets of completion for the HP turbine section and associated components. The schedule shall include:

- a. Order placement for material stock for each major component.
- b. Expected delivery to manufacturing facilities of stock for each major component.
- c. Start of material acceptance testing for each major component.
- d. Start of manufacture of each major component.

## DIVISION F2

## TECHNICAL REQUIREMENTS

- e. Start of shop testing for each major component.
- f. Start of component sub-assembly (i.e., rotor assembly, diaphragm assembly, etc.)
- g. Start of sub-assembly testing (i.e., rotor testing, diaphragm NDE, and final dimensions).
- h. Start of assembly (alignment, etc.)
- i. Final assembly dimensional verification.

Updated manufacturing progress reports shall be prepared and submitted to IPSC on a monthly basis starting the first month after Contract award, and continuing up to the date of final inspection and shipment. In addition to updated manufacturing and testing schedules, the Contractor shall provide notification of testing identified by IPSC as "witnessed tests" in Division E1, Page E1-3, Section 8 "Quality Assurance", at three (3) separate intervals prior to the day of the test in order to allow for IPSC travel arrangements:

- a. Thirty (30) days prior to the test.
- b. Fourteen (14) days prior to the test.
- c. Seven (7) days prior to the test.

The Contractor shall provide construction drawings for approval by IPSC prior to start of fabrication. Required approval date shall be clearly identified at the time of construction drawing submittal to IPSC. Approval of construction drawings shall not relieve the Contractor of sole responsibility for proper design and manufacturing accuracy and quality.

13. Delivery Schedule and Incentives: For delivery of the HP section to the site two (2) weeks ahead of the outage start dates identified in Section 3, the Contractor will be allowed to avoid one (1) day of penalty beyond his guaranteed installation schedule prior to any penalty being assessed. This means that with delivery two (2) weeks ahead of the scheduled outage date, the maximum outage extension penalty will be reduced to \$900,000 and will not begin accumulating until one (1) day past the guaranteed installation schedule identified within the bid.

For delivery to the site after 12:00 midnight on the respective IPSC delivery dates noted, no early payment shall be made.

For delivery after March 1, 2002 for Unit 2 or after February 28, 2003 for Unit 1, a penalty of \$200,000 will be assessed to the Contractor.

14. Installation Schedule and Incentives: IPSC is encouraging base and alternate bids that key on innovative methods for minimizing installation schedules while maintaining verifiable installation quality. The respective outages have a currently scheduled

## DIVISION F2

## TECHNICAL REQUIREMENTS

nominal length of thirty (30) days. This thirty (30) day schedule is defined as "Breaker Open" to "On-Line and Available for Full Load."

All bidders shall prepare a "guaranteed" installation schedule for the HP turbine replacement. The bid outage schedule for replacement of the HP turbine section shall provide detail from "Breaker Open" to "Turbine on Turning Gear." The current maintenance schedule shows this as approximately twenty-eight (28) days.

The bid schedule shall include task level detail for removal of the existing HP section, field accommodation work within the existing HP shell, and full installation of the new HP section including alignment. Major milestones shall include as a minimum:

- a. New HP components staged and ready for installation.
- b. Turbine off gear and lube oil isolated.
- c. Removal of HP outer shell.
- d. Removal of HP rotor.
- e. Removal of HP L/H casing.
- f. Completion of L/H outer shell prep work and dimensional verification.
- g. L/H casing installed.
- h. Alignment complete.
- i. Rotor installed.
- j. U/H casing installed.
- k. U/H outer shell installed.
- l. HP installed and coupled.

The current turbine maintenance schedule is based upon a dedicated HP turbine section crew consisting of not less than six (6) maintenance mechanics working two (2) ten (10) hour shifts per day, six (6) days per week. The Contractor shall prepare and provide overhaul/retrofit schedules for two (2) outage scenarios:

- a. IPSC turbine mechanics, six (6) each, working six (6) days per week, two (2) shifts per day, and ten (10) hours per shift.
- b. Contractor supplied labor working seven (7) days per week, two (2) shifts per day, and twelve (12) hours per shift.

## DIVISION F2

## TECHNICAL REQUIREMENTS

The Contractor shall provide line item pricing for each aspect of contractor supplied labor including:

- a. Assembly/Disassembly.
- b. Sandblasting.
- c. Component rebuild.

In the event that IPSC chooses to contract the labor for the respective outages, the Contractor shall provide supervision, labor, tools, equipment, expertise, and administrative support for completion of all aspects of the turbine retrofit and overhaul in accordance with the outage scope identified.

For each day that the outage length is extended due to the Contractor's products or actions or the direct installation requirements of the new HP turbine section, the Contractor shall be assessed a penalty of \$100,000. The penalty maximum assessed for outage extension shall be ten (10) days or \$1,000,000.

If the turbine section is delivered late and IPSC elects to proceed with installation of the new HP turbine, no outage extension penalty shall be assessed unless and until the Contractor's bid installation schedule is exceeded due to the Contractor's products, actions, or direct installation requirements.

At least ninety (90) days prior to the respective scheduled outages, the Contractor shall have a coordination meeting with IPSC Outage Management and prepare a complete installation information package based on the specific approach and schedule selected by IPSC. This final detailed schedule shall be provided to IPSC within ten (10) working days of the coordination meeting and shall provide completely detailed sequential instructions on installation and alignment of the HP section, including any modifications to existing HP section hardware, special tooling, equipment, or services that may be required.

Both the outage schedule and duration are subject to change by IPSC. In the event of any IPSC initiated schedule change, IPSC will immediately notify the Contractor and negotiate a mutually agreeable resolution.

The Contractor shall identify within their prepared outage schedule, any interface concerns with the simultaneous overhaul on the IP turbine including bearing type/composition and positioning, coupling alignment, etc.

15. HP Section Performance Testing: Initial HP section efficiency/HP wheel power output testing shall occur as soon after the outage as reasonably possible. IPSC anticipates the ability to complete the initial testing within one (1) to two (2) weeks of startup; however, several factors could develop that could delay the test. These factors include an inability to achieve stable or acceptable turbine vibration limits, lack of permission from dispatch authority, unforeseen load demands, or problems with other plant equipment.

## DIVISION F2

## TECHNICAL REQUIREMENTS

In addition to initial performance testing, IPSC will complete an identical confirmation test approximately thirty (30) days following initial performance testing. Performance incentives/penalties shall be calculated and awarded based on the average of the initial performance test results and the thirty (30) day confirmation test results.

The Contractor is invited to be present during all testing. IPSC will apply best effort to confer with the Contractor regarding all issues that may affect the evaluated performance of the turbine.

IPSC will prepare a specification and engage a qualified Contractor for the performance tests. For general information, the following criteria will form the basis of the performance testing:

- a. The unit shall be operated at steady state, full load for approximately one (1) hour prior to start of test.
- b. Steady state shall be defined as fluctuations of not greater than:
  - (1) 1.0% of absolute pressure readings.
  - (2) 5.0° F temperature readings.
- c. Test shall consist of a minimum sixty (60) minute test, with readings taken a minimum of every two (2) minutes.

Testing tolerance for all forms and all sources of testing uncertainty for HP section efficiency shall be 0.25%. This is based on the following testing accuracies:

- a. 0.1% throttle pressure.
- b. 0.1 psi, HP extraction and pressure exhaust.
- c. 0.5° F, all temperatures.

Testing tolerance for HP section wheel power output measurement uncertainty shall be 0.5%. All readings shall be taken at two (2) parallel points allowing for direct indication of faulty equipment. Both elements shall be monitored and recorded during the equalization period and throughout the performance test for increased accuracy. All testing instrumentation shall be calibrated and traceable to NBS Standards. Instrumentation shall be calibrated both before and after testing is complete.

The cost of one (1) initial HP section efficiency/HP section wheel power output test following the outage and one (1) identical confirmation test approximately thirty (30) days subsequent, will be borne by IPSC. All testing shall be considered valid and contractually binding if the HP section efficiency or the HP section wheel power output is tested to be no more than 2.0% percentage points below design efficiency.

## DIVISION F2

## TECHNICAL REQUIREMENTS

If the measured section efficiency during either the initial HP section efficiency/HP section wheel power output test or the identical thirty (30) day confirmation test is more than 2.0% percentage points below design, an additional test shall be run and paid for by IPSC, as soon after the first test as operationally reasonable.

If the first test is within the 2.0% window, the testing results shall be considered valid and contractually binding. If a second test is necessary and the second test is outside (below) the 2.0% window, testing results from the first and second performance tests shall be averaged to produce the valid and contractually binding HP section performance.

HP section efficiency shall be defined as measured across both the valves and the HP section, from throttle conditions to the HP section exhaust.

16. Contract Document Submittals: During the course of fabrication of the HP section, the Contractor shall expeditiously submit the following information in accordance with the monthly updated manufacturing schedules and reports outlined in Division F2, Page F2-4, Section 12.

- a. Construction/fabrication approval drawings.
- b. A revised thermal kit based on the throttle conditions.
- c. Ongoing Q/A reports as specified in Division E1, Page E1-3, Section 8.
- d. Mill certificates.
- e. Manufacturing progress reports.
- f. Rotor balance report including static unbalance at critical speeds and rated speed.
- g. Rotor run-out report.
- h. Calculated rotor torsional characteristics.
- i. Assembly and interface drawings.
- j. Component and assembly rigging plan including accurate weight of each lift.
- k. Piping connection and instrumentation port location drawings.
- l. Within thirty (30) days after award of Contract, the Contractor shall submit a schedule of submittals including all drawings by title and their estimated submittal and approval return dates.
- m. Itemized list of each component showing design weight.

## DIVISION F2

## TECHNICAL REQUIREMENTS

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- n. Steam seal clearance diagrams.
  - o. Steam path dimensions and tolerances for eventual repair of internal components.
17. Existing HP Section Availability: The existing Unit 1 HP turbine at IPSC is currently scheduled to be available for inspection, measurement, and condition assessment during the upcoming outage beginning begin March 5, 2001. The following items are scheduled to be completed at that time:
- a. The upper half HP section outer shell will be removed.
  - b. The fourth stage extraction line will be severed and drifted to allow access from the outside.

If the bidder desires to take advantage of this inspection opportunity, they shall prepare and provide a detailed inspection plan along with the bid submittals as outlined in Division C3, Page C3-1, Section 1. The plan shall include the significant, foreseeable economic, or schedule impacts that may occur as the result of the information to be gathered during the outage.

The successful bidder shall have up to four (4) days of access for inspection of the HP turbine on Unit 1. **The HP turbine inner casing will not be open.**

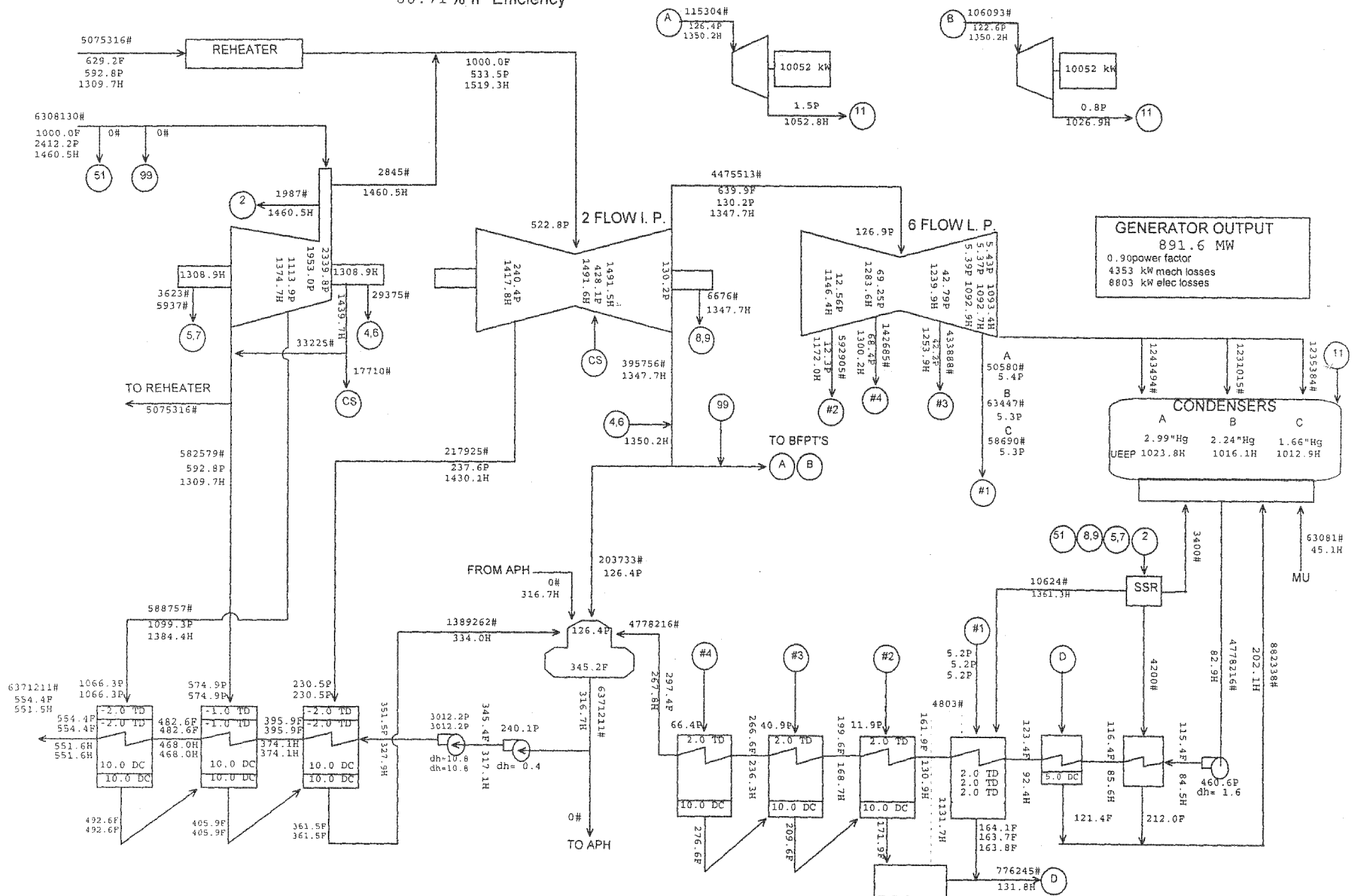
18. Shipping: All components and assemblies shall be packaged, coated, supported, and secured to prevent corrosion, damage, or deformation during shipping. Any damage sustained prior to delivery to the IPSC facility shall be judiciously corrected by and to the account of the Contractor.

Bearing journals areas shall be securely covered and protected by treated cotton cloth or acceptable equal to prevent inadvertent contact or corrosive elements.

19. Maintenance Manuals: The Contractor shall provide ten (10) sets of maintenance manuals at time of delivery, including the following information:
- a. Detailed overhaul recommendations.
  - b. General arrangement drawings.
  - c. Rotor clearance drawings.
  - d. Diaphragm alignment drawings.
  - e. Longitudinal X-section elevation.
  - f. Shaft torque characteristic plot.



87.69 % HP Efficiency  
88.71 % IP Efficiency

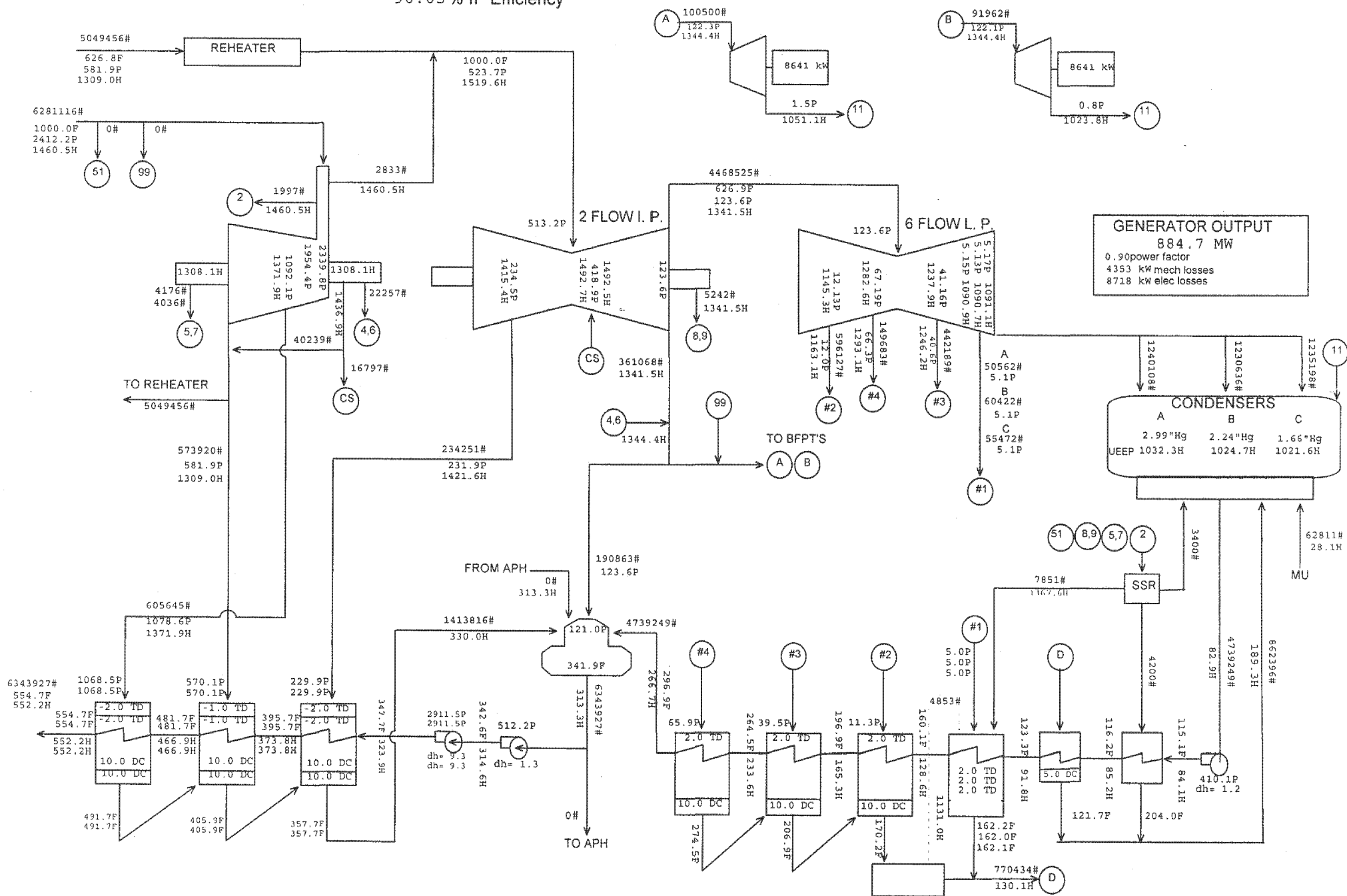


IGS - Unit 1 Benchmark Test @ VWO

## FIGURE 1

**IP7010460**

7689.2 Net Turbine Cycle Heat Rate 87.10 % HP Efficiency  
90.05 % IP Efficiency



IGS - Unit 2 Benchmark Test @ VVO

FIGURE 2

IP7010461

IP7010462



### FIGURE 3

**IP7010463**



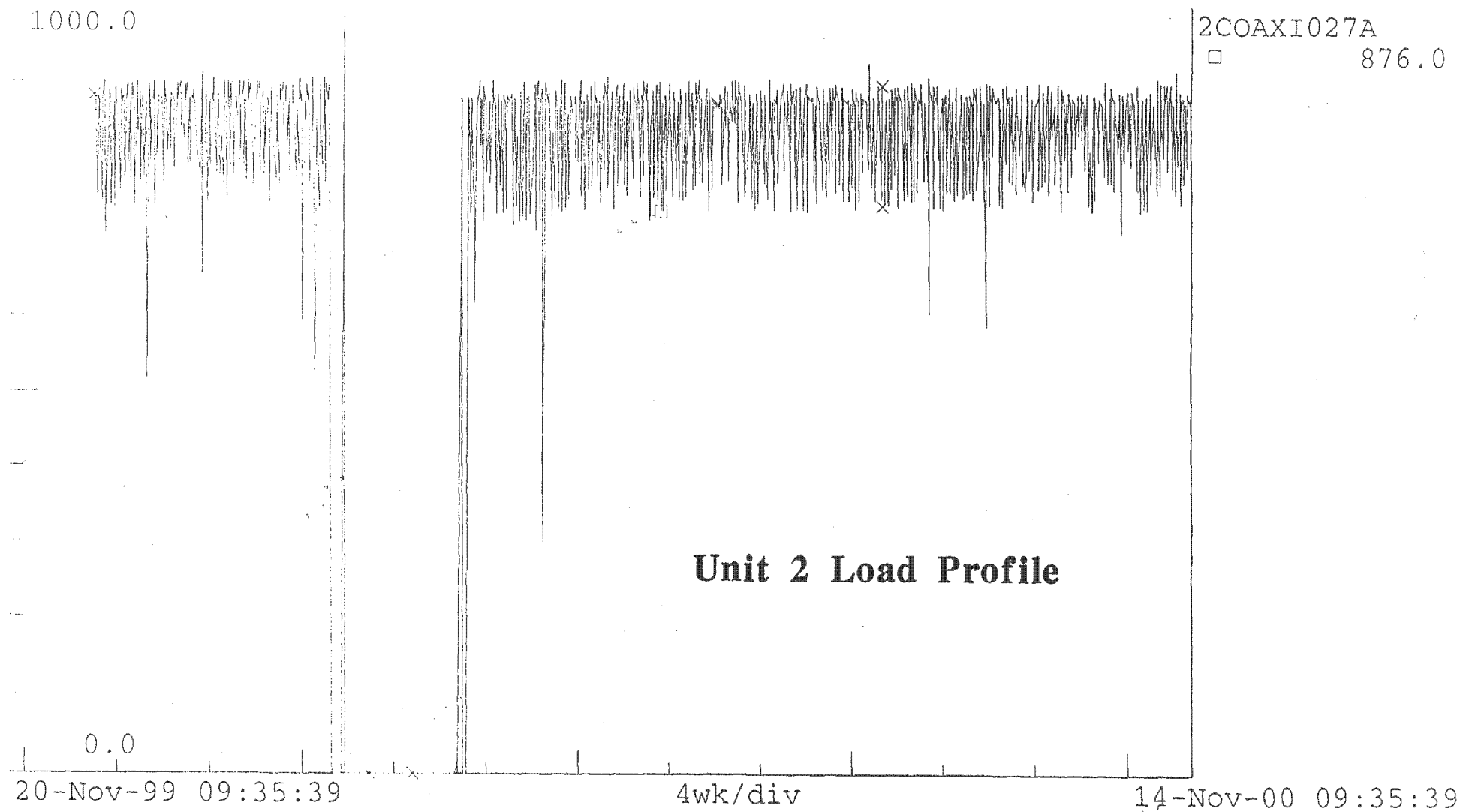
## FIGURE 4

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100 Messages 2TGBG01

GENERATOR

- 14-Nov-00 09:34:09

14-Nov-00 09:34:09



EndTim= 14-Nov-00 09:34:09 /EvalTim= 14-Nov-00 09:34:09 /PanRate= 0

**FIGURE 5**

IP7010464